WORKLOAD INDICATORS OF STAFFING NEED (WISN) COSTING BRIEF

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1. Introduction

The World Health Organization (WHO) developed the Workload Indicators of Staffing Need (WISN) methodology for human resources management and planning. Traditional methods of determining staffing needs include calculating population-to-staff ratios and standards based on the type of health facility, but these methods fail to account for variations across localities in the demand for services and the work that health workers actually do. The WISN methodology estimates staffing requirements by cadre in a health facility based on the actual workload for that facility and locally defined activity (time) standards. Components of the workload are the range of activities performed by a specific cadre, and the workload volume itself is determined using facilities' annual service statistics. The activity standard is the "time necessary for a well-trained, skilled, and motivated worker to perform an activity to professional standards in the local circumstances" [1] and is determined by an expert working group consisting of a country's selected senior representatives of the relevant staff cadre. The calculated staffing requirements for each cadre are then compared with the actual staffing level in a facility. The difference between the actual and calculated number of health workers shows the level of staff shortage (deficit) or surplus for a particular cadre at a facility. The WISN ratio is calculated by dividing the actual staffing level by the required number of staff based on workload. [2]

In 2011, the Namibian Ministry of Health and Social Services (MoHSS) established a human resources for health (HRH) technical working group (TWG) to consider how to transition the PEPFAR-funded health workers to the government. The TWG requested the assistance of USAID Namibia and the IntraHealth Namibia HIV Prevention, Care and Support Project to use the WISN methodology to better understand the current staffing needs for health facilities. Following a successful pilot of the WISN methodology in the Kavango Region, [3] IntraHealth applied it across all thirteen regions of Namibia for the doctor, nurse, and pharmacy cadres. These health workers work in four different types of public health facilities, as they are currently classified: intermediate and district hospitals, health centers, and clinics. The results of IntraHealth's national WISN application are included in Appendix A.

The findings of the national WISN application in Namibia indicate widespread shortages and inequities in human resources for health and little or no correlation between the workload of a health facility and its actual level of staffing. The staffing shortage is most pronounced among doctors and pharmacists. Inequitable staffing distributions were greatest between the health centers and clinics where some clinics have patient workloads similar to large health centers, and yet, to adhere to Namibia's staff establishment, they may have only one or two nurses. In addition, health workers in facilities of the same type and staffing levels are experiencing vastly different workloads. IntraHealth noted in its findings that "the degree of severity of both staff shortages and inequities in staff

[1] Workload indicators of staffing need, user's manual. (2010). World Health Organization.

[2] Hossain, B., & Alam, S. A. (1999). Likely benefit of using workload indicators of staffing need (WISN) for human resources management and planning in the health sector of Bangladesh. *Human Resources Development Journal*, *3*(2).

[3] The WISN pilot in the Kavango Region was jointly implemented by IntraHealth and the Health Systems 20/20 Namibia Project.

distribution in relation to workload inevitably raises serious questions about the quality of health services that overburdened staff in poorly staffed facilities are able to provide."[4]

Based on the results of the national WISN application IntraHealth proposed a range of policy options to the MoHSS Restructuring Committee to alleviate staffing burdens and workload pressure including:

- *Increasing the number of staff posts to meet the WISN staffing requirements*
- *Redistributing existing staff*
- *Reallocating tasks between different staff cadres*
- *Reviewing health facility classifications, and*
- *Creating a new cadre or a specialized track within an existing cadre*

USAID Namibia requested the assistance of the Health Systems 20/20 Namibia Project in costing the first three policy options proposed above for the HRH technical working group. The remainder of this brief provides the details of the costing analyses performed.

Objective

The objectives of these analyses are to develop a costing model and evaluate the cost implications for selected policy options. The findings of these cost analyses are intended to inform the Government of Namibia's decision-making as it evaluates the feasibility and implications of potentially implementing the proposed policy options.

[4] McQuide, Pamela R.N., Ph.D., Jennifer Alma Mieze, Julia Nangombe and Dr. Riitta-Liisa Kolehmainen-Aitken. (2013). Workload Indicators of Staffing Need (WISN) Applied to Inform Policy Change in Namibia. *Brief to USAID*.

2. Methodology

Data Collection

In addition to the finalized WISN results provided by IntraHealth, supplemental data for this analysis was collected from the MoHSS Human Resources Management (HRM) and Human Resources Development (HRD) Directorates and the International Training & Education Center for Health (I-Tech). Table 1 below lists the supplemental data collected with the data sources.

Table 1: Supplemental data and sources

	Data	Data Source
1	Final WISN results disaggregated by region and facility	IntraHealth
2	List of rural/urban facility classifications	HRM/MoHSS
3	Average salary and benefits for all cadres	HRD/MoHSS
4	Benefit package for foreign health workers	HRM/MoHSS
5	Current training output numbers and average training time for each cadre	HRD/MoHSS
6	Training costs for task shifting, enrollment in ART	I-Tech
7	Enrollment in ART workload statistics	IntraHealth

Costing Approach

The cost analysis was conducted in a Microsoft Excel-based model developed by the Health Systems 20/20 Namibia Project. Comparisons were made between the WISN required staff posts and the actual numbers to calculate the deficit or surplus number of staff in each cadre by facility. Further calculations depended on the policy option for handling any deficits. Key assumptions and variables include:

- The target WISN ratio under each policy option – a ratio of 0.8 was assumed which, according to the WHO provides adequate quality of health care in developing countries.
- The feasibility of redistributing staff within and across regions. Staff are not paid a relocation allowance when they are moved from one facility/region to another.
- Task shifting was considered only in facilities that have a surplus of nurses and a deficit of doctors. Training costs for task shifting were amortized over a five year period.
- Projected training output of each cadre used the average percentage change in output over the past 5 years and applied this to project forward for the subsequent five years to 2018.
- An annual attrition rate of 5 percent for staff was used across all cadres.
- The staffing gap that cannot be filled from locally produced health workers was assumed to be filled by imported foreign workers.

3. Results

3.1 Summary Results:

Policy Option	NAD
Option 1(a) : Total cost to increase number of staff over five years based on target WISN ratio of 1.0	3,228,793,752
Option 1(b) : Total cost to increase number of staff over five years based on target WISN ratio of 0.8	2,204,297,772
Option 2 : Total cost of Option 1(b) if redistributing existing staff first before hiring new ones, based on target WISN ratio of 0.8	1,810,409,854
Option 3 : Net savings from reallocating tasks between different staff cadres over five years (net of training costs)	29,894,097

Note: The current exchange rate is USD 1 = NAD 10.3.

From the above, it is clear that the preferred option would be to first redistribute existing staff (Option 2(b)) before hiring additional staff to fill any remaining deficits. The net savings from task shifting would be an additional benefit to any option that is adopted.

3.2 Policy Option 1: Increasing the number of staff to meet the WISN staffing requirements

> *"The obvious first policy response is increasing the number of staff posts of the cadres in shortest supply. This is, however, generally neither quick nor easy to accomplish. Even when good justifications can be provided to relevant government entities, such as Finance and Public Services, increasing staff numbers requires both adequate budgetary resources to pay for the posts and the availability of the required, trained cadres in the domestic or international labor market. For example, Namibia is particularly short of trained doctors, and its own medical school is not yet producing graduates. Filling the gap of too few doctors by employing more would have to be done mainly by hiring from the international labor market or by entering into agreements with other countries, such as Cuba, for more doctors. The increased cost that these policy options would place on the public purse and the challenges of ensuring that expatriate doctors work well in the domestic setting are important policy concerns. Therefore, it is advisable also to carefully examine other policy options that go beyond just increasing numbers."*[5]

This scenario projects costs of increasing the number of staff posts over the next five-year period to meet the WISN staffing recommendations. The original WISN data from IntraHealth is calculated at the facility level. The data was aggregated at the regional level for conducting this cost scenario analysis.

[5] Policy implications of the Namibia WISN findings. (2013). IntraHealth. *Brief to USAID*.

There are findings at the facility and regional level indicating a surplus of staff in a particular cadre. As this policy option calls only for *increasing* the number of staff to meet the WISN staffing requirements, this analysis did not include any cost savings from a decrease in staff to alleviate a surplus.

The basic costing model applied to Policy Option 1 is as follows:

Total Cost of Implementing Policy Option 1 =
*((# of additional staff required) * (average salary + benefits))*

Average annual salaries and benefits by cadre were provided by the HRD within the MoHSS. The WISN results do not disaggregate the nursing cadre by Registered Nurses versus Enrolled Nurses. Because the average salaries and benefits do vary for Registered Nurses and Enrolled Nurses, the average salaries and benefits for the entire nursing cadre was calculated by weighting the average salaries and benefits for registered and enrolled nurses by the total number of each in the country according to the 2011/12 Annual Report of the HRM Directorate. In projecting annual costs for the next five years, an inflation rate was applied to the average annual salaries and benefits. The average annual inflation rate of 5.66 percent was calculated using the World Bank's average annual GDP growth percentage for Namibia from 2010-2012.[6] The average salary and benefit calculations used in this analysis can be seen in Table 2.

Table 2: Projected average annual salary and benefits, by cadre

Average Annual Salary plus Benefits					
Cadre	**2013/2014**	**2014/2015**	**2015/2016**	**2016/2017**	**2017/2018**
Doctor	NAD 583,993	NAD 617,019	NAD 651,913	NAD 688,780	NAD 727,732
Nurse	NAD 139,391	NAD 147,274	NAD 155,602	NAD 164,402	NAD 173,699
Pharmacist	NAD 301,810	NAD 318,878	NAD 336,911	NAD 355,965	NAD 376,095
Pharmacy Asst	NAD 132,597	NAD 140,095	NAD 148,018	NAD 156,389	NAD 165,233

Staffing shortages at the facility level reflect national shortages in human resources for health. The current HRH output from academic and training institutions in Namibia is not sufficient to alleviate the staff shortages. The projected training outputs, shown in Table 3, were calculated using the average percent change from 2006 – 2011[7] applied to 2013 – 2018. Of new HRH graduates, an estimated 50 percent enter the public sector.[8] Therefore, the projected training outputs from 2013 – 2018 were reduced by 50 percent for this analysis.

[6] http://databank.worldbank.org/data/views/reports/tableview.aspx

[7] The training outputs figures referenced were found in the 2011/12 Annual Report of the HRM Directorate.

[8] Kapitako, Alvine. (2013). Namibia: Acute Staff Shortage in Public Health Sector. http://allafrica.com/stories/201304120320.html.

Table 3: Projected training outputs, by cadre

Study Programme	2013/2014	2014/2015	2015/2016	2016/2017	2017/2018
Medicine	18	20	22	25	27
Pharmacy	10	13	16	20	25
Pharmacy assistant	15	19	24	30	38
Nursing degree	389	592	899	1367	2077
Enrolled nurse	95	90	86	81	77
Average nurse	*242*	*341*	*492.5*	*724*	*1077*

The projected numbers of current staff were further reduced to account for attrition. In an analysis of 12 African countries, Kinfu et al. found that across all the countries each year the health sector is expected to lose 4 to 6 percent of physicians, nurses, and midwives due to all combined causes.[9] For the purpose of this analysis, an average annual attrition rate of 5 percent was applied to the projected available staff calculations.

Namibia currently implements a policy of hiring foreign health workers to fill HRH shortages at the facility level. After taking training outputs into account for Policy Option 1, the remaining gap between current staffing levels and required staffing levels is assumed to be filled by internationally recruited health workers. The estimated costs for international health workers include the cost of a plane ticket (NAD 29,438) and work permit (NAD 2,870). The projected costs for international health workers in Table 4 were inflated using the same rate applied to the annual average salary and benefit projections for locally produced health workers shown in Table 2.

Table 4: Projected additional costs for international workers

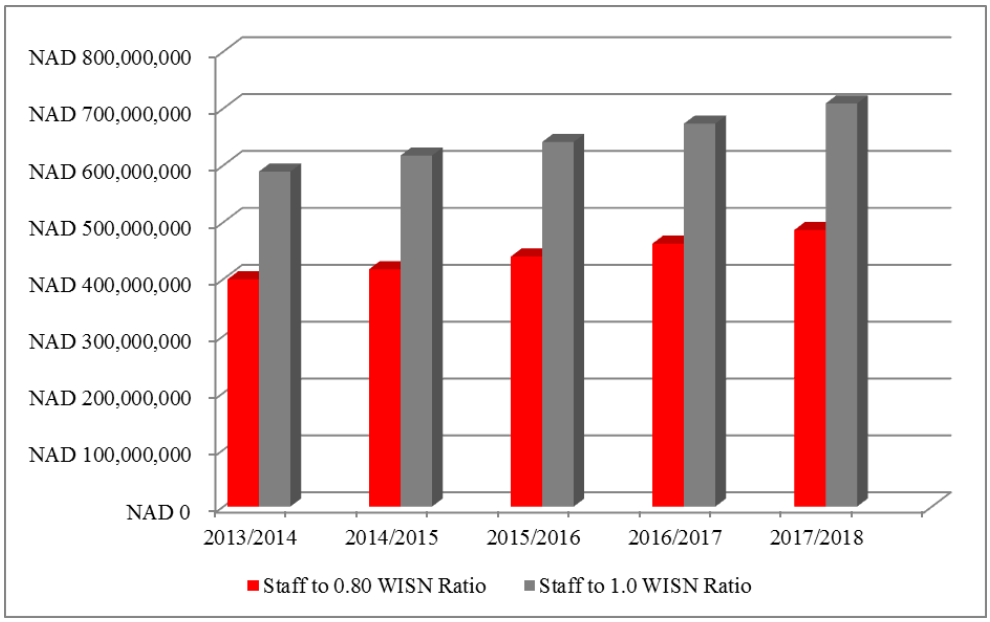
Average Costs for International Health Workers				
2013/2014	2014/2015	2015/2016	2016/2017	2017/2018
NAD 32,308	NAD 34,135	NAD 36,066	NAD 38,105	NAD 40,260

As previously mentioned, the WISN ratio is equal to the current number of staff divided by the WISN's calculated number of required staff. A 1.0 WISN ratio would indicate that the facility was fully staffed according to the WISN staffing requirements. In our analysis, we calculated the cost implications of meeting the 1.0 WISN ratio staffing requirements, but we also explored the cost implications of meeting a less ambitious target of 0.80 WISN ratio. To think of this ratio differently, a 0.80 WISN ratio would indicate that facilities were staffed at 80 percent of the staffing requirements. The modified WISN ratio of 0.80 is the WHO Health Worker Threshold[10] for the desired level of health workers to population coverage and was used in this analysis as a minimum facility staffing threshold to provide a more conservative costing comparison to the 1.0 WISN ratio. Figure 1 depicts the cost projections for Policy Option 1 using the 1.0 and 0.80 WISN ratios. More detailed cost projections can be found in Appendix B.

[9] Kinfu, Y., M. Dal Poz, H. Mercer, D. Evans. (2009). The health worker shortage in Africa: are enough physicians and nurses being trained? *Bulletin of the World Health Organization* 2009; 87: 225-230.doi: 10.2471/BLT.08.051599.

[10] Erasmus, M. (2010). The WHO Health Worker Threshold: Where it comes from and why it is not applicable. *Econex*.

Figure 1: Cost projections for Policy Option 1



As to be expected, the cost implications for meeting the 1.0 WISN ratio are higher than those for the 0.80 WISN ratio. From 2013/2014 to 2017/2018, the annual cost projections for meeting the 1.0 WISN ratio are 31 to 32 percent higher than those for the 0.80 WISN ratio. The average cost over five years for meeting the 1.0 WISN ratio is NAD 645,758,750, with a five-year grand total of NAD 3,228,793,752. In comparison, the average cost for meeting the 0.80 WISN ratio is NAD 440,859,554 per year, with a five-year grand total of NAD 2,204,297,772.

3.3 Policy Option 2: Redistributing existing staff

> *"Redistributing existing staff so that the staff numbers are better in line with workloads is another policy option. Where this can be done, it would relieve the workload pressure in the understaffed facilities. When carefully done, such reallocation of staff and posts would not necessarily have a noticeable negative impact on health service provision in the relatively overstaffed facilities."*[11]

This scenario redistributes existing staff to better align the currently available staff with the WISN staffing requirements. At the facility level, this policy option redistributes surplus staff to facilities with staff deficits to begin relieving workload pressure in understaffed facilities.

The following criteria and assumptions were followed when redistributing staff:

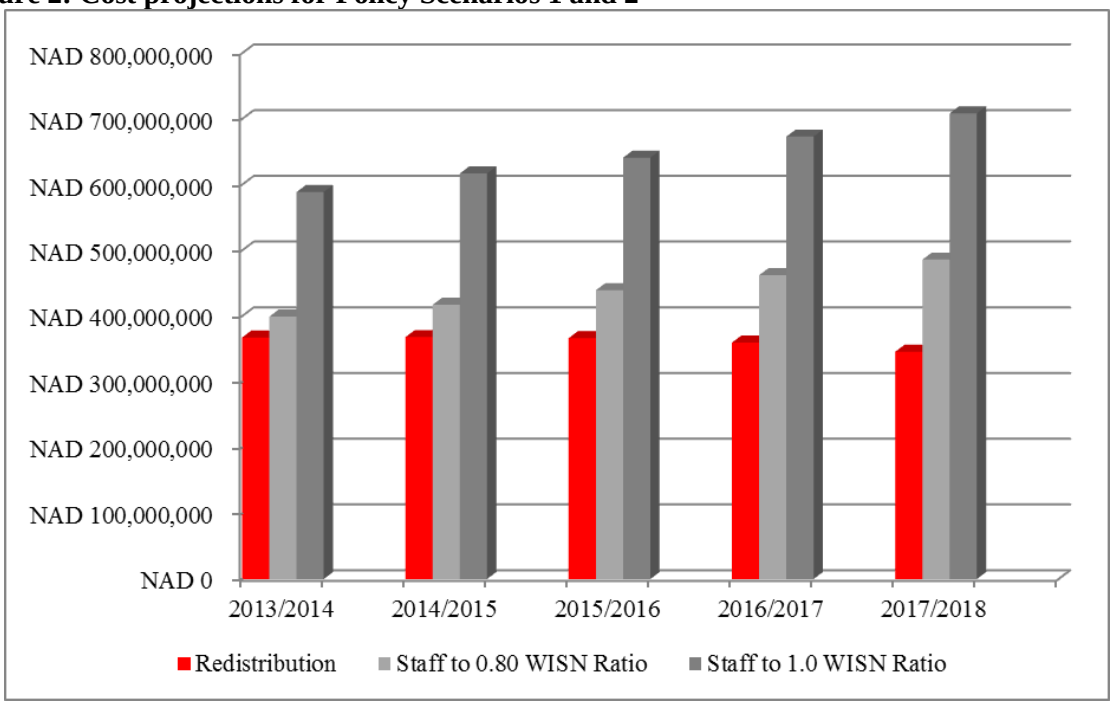
- Staff would only be redistributed to a facility within the same region.
- The minimum threshold for the staff requirement was a 0.80 WISN ratio. Facilities with a WISN ratio greater than 0.80 would be considered to have a surplus of staff in that cadre. Likewise, facilities with a WISN ratio less than 0.80 would be considered to have a deficit.

[11] Policy implications of the Namibia WISN findings. (2013). IntraHealth. *Brief to USAID*.

- The calculated staffing requirement for a specific cadre in a facility must be a minimum of 0.5 in order to receive a full-time staff member in that cadre.
- No relocation allowances would be paid to staff.

Because the Namibian government does not currently provide relocation allowances or relocation incentives for a health worker relocating from an urban to rural health facility, for example, there are currently no costs directly associated with redistributing staff. However, if we assume that the Namibian government would still increase the number of staff posts to meet the 0.80 threshold following implementation of the redistribution in Policy Option 2, the total staff deficit used to determine the number of additional staff needed (including the number of foreign workers needed) would be less than in Policy Option 1. With several staff deficits at the facility level filled with redistributed staff, the total number of additional staff needed is thereby decreased; and the costs of increasing the number of staff to the 0.80 WISN ratio are also decreased. Figure 2 shows the cost projections for Policy Scenario 2 alongside those for Policy Scenario 1 using the 1.0 and 0.80 WISN ratios. The table with the cost detail for Figure 2 can be found in Appendix C.

Figure 2: Cost projections for Policy Scenarios 1 and 2



With the total number of additional staff needed to meet the 0.80 WISN ratio reduced following redistribution, the costs of then hiring additional health workers is also reduced. From 2013/2014 to 2017/2018, the annual cost projections for meeting the 0.80 WISN ratio following implementation of an initial redistribution within regions are, on average, 17 percent lower than those for the increasing the number of staff to meet the 0.80 WISN ratio without redistribution. The average annual cost over five years for meeting the 0.80 WISN ratio following redistribution is NAD 361,517,172, with a five-year grand total of NAD 1,807,585,861. In comparison, the average cost for meeting the 0.80 WISN ratio without redistribution is NAD 440,859,554, with a five-year grand total of NAD 2,204,297,772.

As a point of comparison, we calculated the five-year total cost for redistributing staff *nationally*, eliminating the previous assumption that staff will only be redistributed within the same region. The total cost for meeting the 0.80 WISN ratio following national redistribution is NAD 1,805,634,389, a

difference of NAD 1,951,471 when compared to the five-year total cost for redistributing solely within the same region.

3.4 Policy Option 3: Reallocating tasks between different staff cadres

> *"Reviewing the scopes of work and reallocating tasks between different staff cadres is [another] policy option. Scopes of work are frequently outdated and/or based on models that originate in other countries or other health care settings. Taking a fresh look at the way key tasks are presently allocated to different staff categories should be based on the real challenges Namibia faces in staffing its health facilities currently and in the future. It should ignore old notions of what one staff category should or should not be allowed to do and allocate each important task to the least trained staff category that can competently perform it. The following types of questions could help in such a review: Are all workload components, as defined in the WISN, essential for quality service provision? Do they all require the level of training and experience that the current staff category performing them possesses? If not, what is the staff category that could competently perform it now or that could be trained to do so in the future? For example, are there components of a doctor's workload that could be done just as well by a nurse or another staff category?"*[12]

The current widespread shortage of doctors and general surplus of nurses in hospitals lends itself to an examination of a scenario in which a task would be shifted from doctors to nurses to alleviate some of the workload burden from doctors (or similarly from a nurse to a less expensive clinical support staff). In this analysis, we explored task shifting enrollment of patients on ART from doctors to nurses. I-Tech is currently conducting trainings in Namibia for nurses and doctors, the latter serving as mentors, on this particular task shifting, and they provided the costs associated with the training. The training cost per nurse is NAD 24,078.33, and the cost per doctor is NAD 11,802.75.

As a first step in the analysis of this policy option, we made an estimate as to how many nurses and doctors would be trained. We began with the assumption that task shifting would only take place in facilities with a deficit of doctors and a surplus of nurses. A total of 27 health facilities met these criteria. In order to avoid increasing the workload for nurses in a facility to the point where the workload pressure from the additional task would cause a deficit where there was once a surplus, we designated the training parameter to be 25 percent of the surplus of nurses. In estimating the approximate number of doctors to be trained as mentors to the nurses trained, we set a minimum threshold ratio of 1 mentor to 3 nurses. If the deficit of doctors in the facility was so great that this minimum threshold could not be met, the total number of doctors currently working at the facility would be trained as mentors. Table 5 details the total number of nurses and doctors that would be trained in each region under this scenario. The total cost includes the costs for training both the doctors and nurses. In the Kunene region, all facilities with a deficit of doctors also had a deficit of nurses and would therefore not meet the criteria for task shifting set for this analysis.

[12] Policy implications of the Namibia WISN findings. (2013). IntraHealth. *Brief to USAID*.

Table 5: Training costs for task shifting enrollment of ART patients, by region

Region	Total # of Nurses Trained	# of Doctors Trained	Total Cost
Caprivi	3	1	NAD 84,038
Erongo	18	7	NAD 516,029
Hardap	4	2	NAD 119,919
Karas	9	4	NAD 264,862
Kavango	7	3	NAD 203,957
Khomas	51	18	NAD 1,440,445
Kunene			
Ohangwena	11	5	NAD 323,875
Omaheke	2	1	NAD 59,959
Omusati	23	10	NAD 671,829
Oshana	47	16	NAD 1,320,526
Oshikoto	14	5	NAD 396,110
Otjozondjupa	22	8	NAD 94,422
Totals	***211***	***80***	***NAD 2,866,722***

With the total cost of training nurses and doctors for a task shifting scenario, the next step in this analysis was to examine the cost effectiveness of this policy option. In order to do so, we compared the costs of a doctor and a nurse performing the same task and determined whether the cost savings would be greater than the cost of the task shifting training.

IntraHealth provided us with the total number of patients enrolled in ART at 15 hospitals across 6 regions in one year and the amount of time, as determined by the expert panel consulted during the WISN process, required to enroll patients in ART. This is also known as the "activity standard," and is defined as "the time it takes a trained and well-motivated member of a particular staff category to perform the action to acceptable professional standards in the circumstances of the country."[13] The activity standard for enrolling a single patient in ART is 20 minutes. We made the following assumptions related to the activity standard:

- Only one doctor or one nurse is present while a patient is enrolled in ART, but it is assumed that following training there will be some lag time before the full task shifting is in place while the doctors oversee the work of the trained nurses in this task.

[13] McQuide, Pamela R.N., Ph.D., Jennifer Alma Mieze, Julia Nangombe and Dr. Riitta-Liisa Kolehmainen-Aitken. (2013). Workload Indicators of Staffing Need (WISN) Applied to Inform Policy Change in Namibia. *Brief to USAID*.

- A nurse can enroll a patient in ART with the same efficiency as a doctor. Therefore, the same activity standard is implied for a nurse.

Using the total number of patients and the activity standard, we were able to determine the total amount of time (in hours) required to enroll patients annually at each hospital.

With the annual average salaries (plus benefits) for a doctor and a nurse, we are able to determine the hourly cost of a doctor and nurse. As will be recalled, the average salary for nurses included in policy options 1 and 2 was the weighted average of both Registered and Enrolled Nurses. Because Registered Nurses receive more education and medical training, we assumed that they would likely be preferred when selecting nurses for this task shifting program. Therefore, only the average salary for Registered Nurses was considered in the analysis of this policy option. The average annual salary plus benefits for a registered nurse is NAD 283,518.

With these inputs, the following calculation was performed for both doctors and nurses:

*Total Annual Cost = # of patients enrolled in ART * the activity standard (in hours) * hourly rate*

Table 6 shows the annual workload statistics for enrolling patients in ART, the total amount of time required to enroll this patient workload in ART, and, using the average salaries for a doctor and nurse, the costs for each cadre to perform this task. The difference in cost for a nurse performing this task as compared to a doctor, or the cost savings, is shown in the final column.

Table 6: Workload, time, and average cost to enroll patients in ART, by facility

Region	Facility	Total Workload	Total Hours	Total Days	Avg Doc Cost	Avg Nurse Cost	Cost Savings
Ohangwena	Eenhana District Hospital	750	250.0	31.3	NAD 608,326	NAD 36,916	NAD 571,410
Ohangwena	Engela District Hospital	830	276.7	34.6	NAD 673,214	NAD 40,854	NAD 632,360
Ohangwena	Okongo District Hospital	211	70.3	8.8	NAD 171,142	NAD 10,386	NAD 160,757
Omaheke	Gobabis District Hospital	335	111.7	14.0	NAD 271,719	NAD 16,489	NAD 255,230
Omusati	Okahao District Hospital	369	123.0	15.4	NAD 299,296	NAD 18,163	NAD 281,134
Omusati	Oshikuku District Hospital	472	157.3	19.7	NAD 382,840	NAD 23,233	NAD 359,607
Omusati	Outapi District Hospital	778	259.3	32.4	NAD 631,037	NAD 38,295	NAD 592,742
Omusati	Tsandi District Hospital	255	85.0	10.6	NAD 206,831	NAD 12,552	NAD 194,279
Oshana	Oshakati Intermediate Hospital	1486	495.3	61.9	NAD 1,205,297	NAD 73,144	NAD 1,132,153
Oshikoto	Onandjokwe Intermediate Hospital	1419	473.0	59.1	NAD 1,150,953	NAD 69,846	NAD 1,081,107
Oshikoto	Tsumeb District Hospital	296	98.7	12.3	NAD 240,086	NAD 14,570	NAD 225,516
Otjozondjupa	Grootfontein District Hospital	123	41.0	5.1	NAD 99,765	NAD 6,054	NAD 93,711
Otjozondjupa	Okahandja District Hospital	298	99.3	12.4	NAD 241,708	NAD 14,668	NAD 227,040
Otjozondjupa	Okakarara District Hospital	92	30.7	3.8	NAD 74,621	NAD 4,528	NAD 70,093
Otjozondjupa	Otjiwarongo District Hospital	340	113.3	14.2	NAD 275,774	NAD 16,735	NAD 259,039
						Total:	**NAD 6,136,178**

The average cost savings for a nurse to enroll patients in ART across all 15 hospitals was NAD 409,079 with a median cost savings of NAD 259,039.

The final step was to examine the training costs alongside these cost savings at the regional level to understand the net cost savings given the training investment. This is shown in Table 7 below. Training costs have been treated as a capital cost and spread over a five year period (amortized) to recognize the fact that they are an investment that will benefit the health system over time. Five years

were chosen as an estimate of the time that staff would remain in the public health system. Total cost savings per year amount to NAD 5,978,819. This means that task shifting the enrollment of ART patients from doctors to nurses makes sense from a cost perspective.

Table 7: Difference between training costs for task shifting and salary cost savings resulting from task shifting

Region	# of Nurses Trained	# of Doctors Trained	Total Training Cost	Annual Cost Savings	Savings
Ohangwena	11	5	NAD 64,775	NAD 1,364,526	NAD 1,299,751
Omaheke	2	1	NAD 11,992	NAD 1,682,992	NAD 1,671,000
Omusati	23	10	NAD 134,366	NAD 415,986	NAD 281,620
Oshana	47	16	NAD 264,105	NAD 1,132,153	NAD 868,048
Oshikoto	14	5	NAD 79,222	NAD 1,306,623	NAD 1,227,401
Otjozondjupa	22	8	NAD 18,884	NAD 649,883	NAD 630,999
Totals	***119***	***45***	***NAD 573,344***	***NAD 6,552,164***	***NAD 5,978,819***

4. Conclusion

The staffing shortages found in the Namibian national WISN analysis call for decision makers charged with human resources planning and management to consider options to alleviate the workload pressure on overburdened health workers. A combination of policy options will likely be the most cost effective solution. Of the three policy options considered in this analysis, the most costly will be increasing the number of staff posts to meet the WISN required number of staff. By redistributing staff within the same region before increasing the number of staff posts to meet the 0.80 WISN ratio required staffing levels, costs were reduced by 17 percent. Task shifting from doctors to nurses or similarly from a nurse to a less expensive clinical support staff would result in a further decrease in costs from the baseline of simply increasing the number of staff posts to meet the required WISN staffing levels. The severe shortage of doctors and the higher cost of salaries for this cadre means that a reduction in the number of doctors required, and therefore the staff deficit for this cadre, would greatly reduce the costs for hiring additional staff to meet the required WISN staffing levels. Table 8 shows the cost savings of the three policy option alternatives relative to the total cost of increasing the number of staff to meet the target WISN ratio of 1.0.

Table 8: Cost savings of policy options relative to the total cost of meeting the target WISN ratio of 1.0.

Policy Option	**NAD**
Option 1(a) : ***TOTAL COST*** to increase number of staff over five years based on target WISN ratio of 1.0	3,228,793,752
Cost Savings of Alternative Policy Options	
Option 1(b) : ***TOTAL COST SAVINGS*** of increasing number of staff over five years based on reduced target WISN ratio of 0.8	1,024,495,980
Option 2 : ***TOTAL COST SAVINGS*** of Option 1(b) if redistributing existing staff first before hiring new ones, based on target WISN ratio of 0.8	1,418,383,898
Option 3 : ***NET COST SAVINGS*** from reallocating tasks between different staff cadres (net of training costs over five years)	29,894,097

Decision makers will determine which policy options to implement and, if implementing multiple policy options, must determine the order in which these policy options are implemented. Implementing the least costly policy option of redistribution prior to implementing task shifting in facilities with a remaining deficit would likely be the most cost effective approach.

Appendix A

National WISN Results, by region, by cadre

	Doctors				Nurses				Pharmacists				Pharmacy Asst			
Region	**Current #**	**Required #**	**Gap/Excess**	**WISN Ratio**	**Current #**	**Required #**	**Gap/Excess**	**WISN Ratio**	**Current #**	**Required #**	**Gap/Excess**	**WISN Ratio**	**Current #**	**Required #**	**Gap/Excess**	**WISN Ratio**
Caprivi	9	21	12	0.43	174	166	13	1.05	-	10	10	-	2	21	19	0.10
Erongo	14	37	23	0.38	270	253	41	1.07	-	21	21	-	8	29	21	0.28
Hardap	8	22	14	0.36	169	153	14	1.11	2	14	12	0.15	5	19	15	0.27
Karas	7	25	18	0.28	180	181	46	0.99	-	15	15	-	5	20	15	0.25
Kavango	25	101	76	0.25	430	501	109	0.86	2	31	29	0.06	9	53	44	0.17
Khomas	92	247	155	0.37	889	884	58	1.01	9	56	47	0.16	17	20	10	0.84
Kunene	8	17	9	0.47	128	147	64	0.87	-	14	14	-	3	19	16	0.16
Ohangwena	15	51	36	0.29	320	393	95	0.81	-	28	28	-	6	42	36	0.14
Omaheke	5	12	7	0.43	87	108	22	0.80	1	9	8	0.11	2	12	10	0.16
Omusati	17	52	35	0.33	368	412	97	0.89	1	36	35	0.03	8	55	47	0.15
Oshana	44	121	77	0.36	551	458	46	1.20	4	38	34	0.10	3	28	25	0.11
Oshikoto	28	79	51	0.35	373	388	42	0.96	2	28	26	0.07	9	29	20	0.31
Otjozondjupa	10	34	24	0.30	276	235	28	1.17	-	24	24	-	6	31	25	0.19
Totals	**282**	**819**	**537**	**0.34**	**4,215**	**4,280**	**675**	**0.98**	**21**	**325**	**303**	**0.06**	**83**	**379**	**303**	**0.22**

Appendix B

Detailed five-year cost projections to meet the 1.0 and 0.80 WISN ratios, increasing staff posts without redistribution, by cadre

***Policy Option 1a: Total Cost Projection to meet 1.0 WISN ratio										
	2013/2014		2014/2015		2015/2016		2016/2017		2017/2018	
CADRE	Salary	Int'l Add'l	Salary	Int'l Add'l	Salary	Int'l Add'l	Salary	Int'l Add'l	Salary	Int'l Add'l
Doctor	NAD 313,604,241	NAD 16,767,956	NAD 331,339,302	NAD 17,545,547	NAD 350,077,322	NAD 18,285,329	NAD 369,875,021	NAD 18,976,459	NAD 390,792,327	NAD 19,606,760
Nurse	NAD 94,088,797	NAD 13,989,451	NAD 99,409,741	NAD 10,752,621	NAD 105,031,596	NAD 1,839,353	NAD 110,971,381	NAD 0	NAD 117,247,075	NAD 0
Pharmacist	NAD 91,448,430	NAD 9,466,303	NAD 96,620,055	NAD 9,626,156	NAD 102,084,147	NAD 9,665,618	NAD 107,857,247	NAD 9,450,124	NAD 113,956,829	NAD 9,098,825
Pharmacy Asst	NAD 40,176,740	NAD 9,304,762	NAD 42,448,829	NAD 9,353,074	NAD 44,849,411	NAD 9,232,829	NAD 47,385,751	NAD 8,611,807	NAD 50,065,527	NAD 7,891,016
Annual Totals:	NAD 588,846,678		NAD 617,095,323		NAD 641,065,603		NAD 673,127,790		NAD 708,658,358	
									Grand Total:	NAD 3,228,793,752

***Policy Option 1b: Total Cost Projection to meet 0.80 WISN ratio										
	2013/2014		2014/2015		2015/2016		2016/2017		2017/2018	
CADRE	Salary	Int'l Add'l	Salary	Int'l Add'l	Salary	Int'l Add'l	Salary	Int'l Add'l	Salary	Int'l Add'l
Doctor	NAD 218,413,382	NAD 11,501,719	NAD 230,765,175	NAD 11,981,492	NAD 243,815,490	NAD 12,406,614	NAD 257,603,832	NAD 12,765,289	NAD 272,171,937	NAD 13,044,333
Nurse	NAD 48,647,393	NAD 3,456,977	NAD 51,398,518	NAD 0	NAD 54,305,225	NAD 0	NAD 57,376,314	NAD 0	NAD 60,621,080	NAD 0
Pharmacist	NAD 72,434,400	NAD 7,430,886	NAD 76,530,736	NAD 7,475,632	NAD 80,858,730	NAD 7,393,476	NAD 85,431,482	NAD 7,125,699	NAD 90,262,835	NAD 6,683,208
Pharmacy Asst	NAD 30,497,195	NAD 6,946,263	NAD 32,221,883	NAD 6,861,196	NAD 34,044,107	NAD 6,600,030	NAD 35,969,382	NAD 6,058,749	NAD 38,003,535	NAD 5,193,577
Annual Totals:	NAD 399,328,215		NAD 417,234,632		NAD 439,423,673		NAD 462,330,747		NAD 485,980,505	
									Grand Total:	NAD 2,204,297,772

Appendix C

Detailed five-year cost projections to meet the 0.80 WISN ratio, with redistribution prior to increasing staff posts, by cadre

***Policy Option 2a: Total national cost (N$) of redistributing staff REGIONALLY and hiring to .80 WISN recommended levels (by cadre)										
	2013/2014		2014/2015		2015/2016		2016/2017		2017/2018	
CADRE	Salary	Int'l Add'l	Salary	Int'l Add'l	Salary	Int'l Add'l	Salary	Int'l Add'l	Salary	Int'l Add'l
Doctor	NAD 227,173,277	NAD 11,986,342	NAD 228,914,117	NAD 11,981,492	NAD 228,821,490	NAD 11,865,628	NAD 226,608,719	NAD 11,584,023	NAD 221,230,666	NAD 11,152,099
Nurse	NAD 1,951,471	NAD 0	NAD 0	NAD 0	NAD 0	NAD 0	NAD 0	NAD 0	NAD 0	NAD 0
Pharmacist	NAD 76,659,740	NAD 7,883,201	NAD 77,806,249	NAD 7,885,255	NAD 77,826,528	NAD 7,754,133	NAD 76,532,370	NAD 7,430,541	NAD 73,338,553	NAD 6,844,249
Pharmacy Asst	NAD 34,077,301	NAD 7,818,584	NAD 33,903,025	NAD 7,612,173	NAD 33,007,982	NAD 7,177,082	NAD 31,121,335	NAD 6,439,802	NAD 27,924,337	NAD 5,274,098
Annual Totals:	**NAD 367,549,916**		**NAD 368,102,311**		**NAD 366,452,842**		**NAD 359,716,790**		**NAD 345,764,001**	
									Grand Total:	**NAD 1,807,585,861**

***Policy Option 2b: Total national cost (N$) of redistributing staff NATIONALLY and hiring to .80 WISN recommended levels (by cadre)										
	2013/2014		2014/2015		2015/2016		2016/2017		2017/2018	
CADRE	Salary	Int'l Add'l	Salary	Int'l Add'l	Salary	Int'l Add'l	Salary	Int'l Add'l	Salary	Int'l Add'l
Doctor	NAD 227,173,277	NAD 11,986,342	NAD 228,914,117	NAD 11,981,492	NAD 228,821,490	NAD 11,865,628	NAD 226,608,719	NAD 11,584,023	NAD 221,230,666	NAD 11,152,099
Nurse	NAD 0	NAD 0	NAD 0	NAD 0	NAD 0	NAD 0	NAD 0	NAD 0	NAD 0	NAD 0
Pharmacist	NAD 76,659,740	NAD 7,883,201	NAD 77,806,249	NAD 7,885,255	NAD 77,826,528	NAD 7,754,133	NAD 76,532,370	NAD 7,430,541	NAD 73,338,553	NAD 6,844,249
Pharmacy Asst	NAD 34,077,301	NAD 7,818,584	NAD 33,903,025	NAD 7,612,173	NAD 33,007,982	NAD 7,177,082	NAD 31,121,335	NAD 6,439,802	NAD 27,924,337	NAD 5,274,098
Annual Totals:	**NAD 365,598,445**		**NAD 368,102,311**		**NAD 366,452,842**		**NAD 359,716,790**		**NAD 345,764,001**	
									Grand Total:	**NAD 1,805,634,389**